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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/991,628	11/21/2001	Ashley Saulsbury	016747-015100US	4725

20350 7590 09/22/2004

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EXAMINER

NGO, CHUONG D

ART UNIT	PAPER NUMBER
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2124

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/991,628

Applicant(s)

SAULSBURY, ASHLEY

Examiner

Chuong D Ngo

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 04/12/02
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3,5-10, and 13-16 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hansen et al (5,953,241).

As per claims 1-3,5-10, and 13-16, Hansen et al discloses in figure 4 a parallel multiply accumulation including a first input operand register (a-d), a second input operand register (e-h), a third input operand register (i-l) a plurality of functional block (x, +) and an output operand register ( $a*e+i - d*h+l$ ) as claimed.

As per claim 3, since in figure 4, the adders (+) have inputs and outputs of the same size of the operand, the products from the multipliers (x), which should have twice the size of the operand, are inherently truncated to the size of the operand in order to add with the third operands.

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4. Claims 4,11,12,17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen et al (5,953,241).

As per claim 4, although Hansen does not specifically teach rounding the products when they are truncated to the size of the operand, such rounding a product are well-known in the art for reducing truncation error. It would have been obvious to a person of ordinary skill in the art to provide the multiply accumulation in figure 4 of Hansen with rounding function for rounding the truncated products in order to minimized the truncation error.

As per claims 11,12,17 and 18, Hansen does not specifically disclose overflow/underflow detection, and saturating overflow/underflow results by providing the result with a maximum or minimum value depend on whether it is overflow or underflow. However, such overflow/underflow detection, and saturating overflow/underflow results in arithmetic operations are also well known in the art for correcting overflow/underflow condition. It would have been obvious to a person of ordinary skill in the art to provide the multiply accumulation in figure 4 of Hansen with an overflow/underflow detection, and saturating overflow/underflow results as claimed in order to reduce the error caused by overflow/underflow.

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5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong D Ngo whose telephone number is (703) 305-9764.

The examiner can normally be reached on Tuesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703) 309-9662. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Chuong D Ngo  
Primary Examiner  
Art Unit 2124

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09/16/2004